



Rearing Queens using the Miller Method

Mark Sweatman

- Overview of the queen rearing process
- Steps using the **Miller Method** to rear queens

Please Hold all Questions

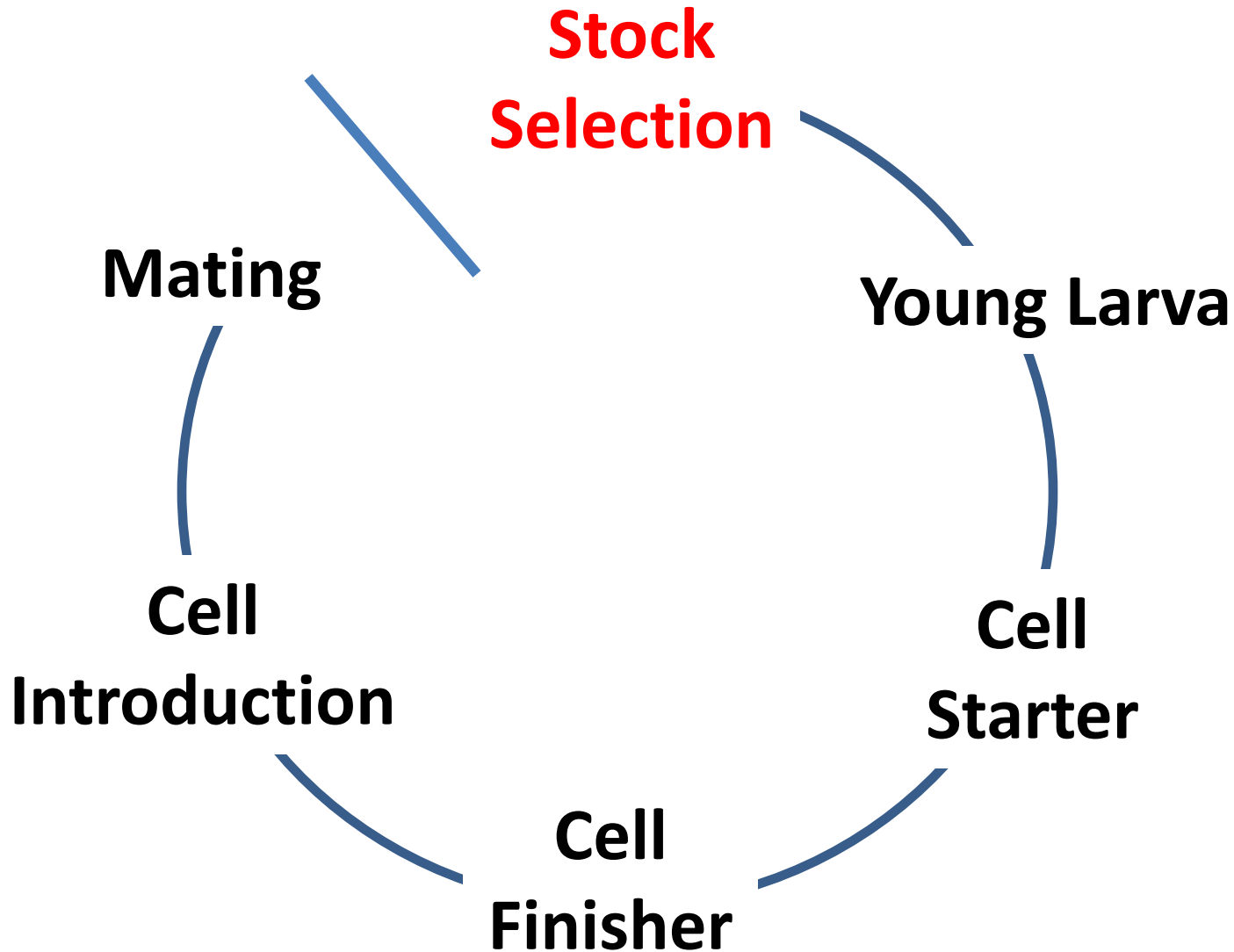


What is Required?

- Desire to rear queens and **practice!**
- Planning
 - Maintain a firm schedule
- Perform some hive manipulations
- Have mating nucs / hives



Steps in Queen Rearing





Selection of Queen Stock

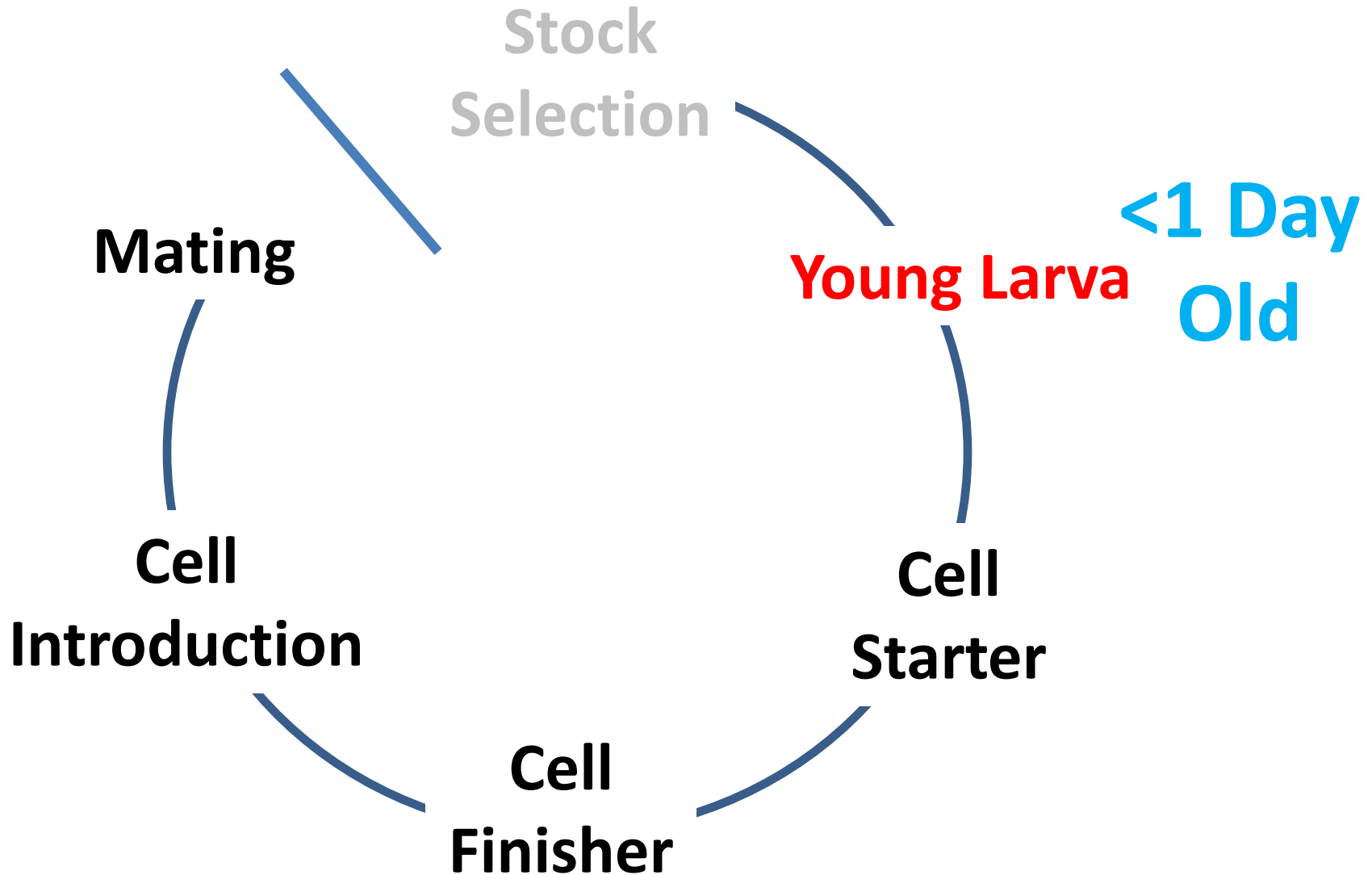
Desired Characteristics

- Honey Production
- Gentleness
- Hygienic Behavior
- Over wintering
- Few signs of Disease
- Colony growth / Brood production





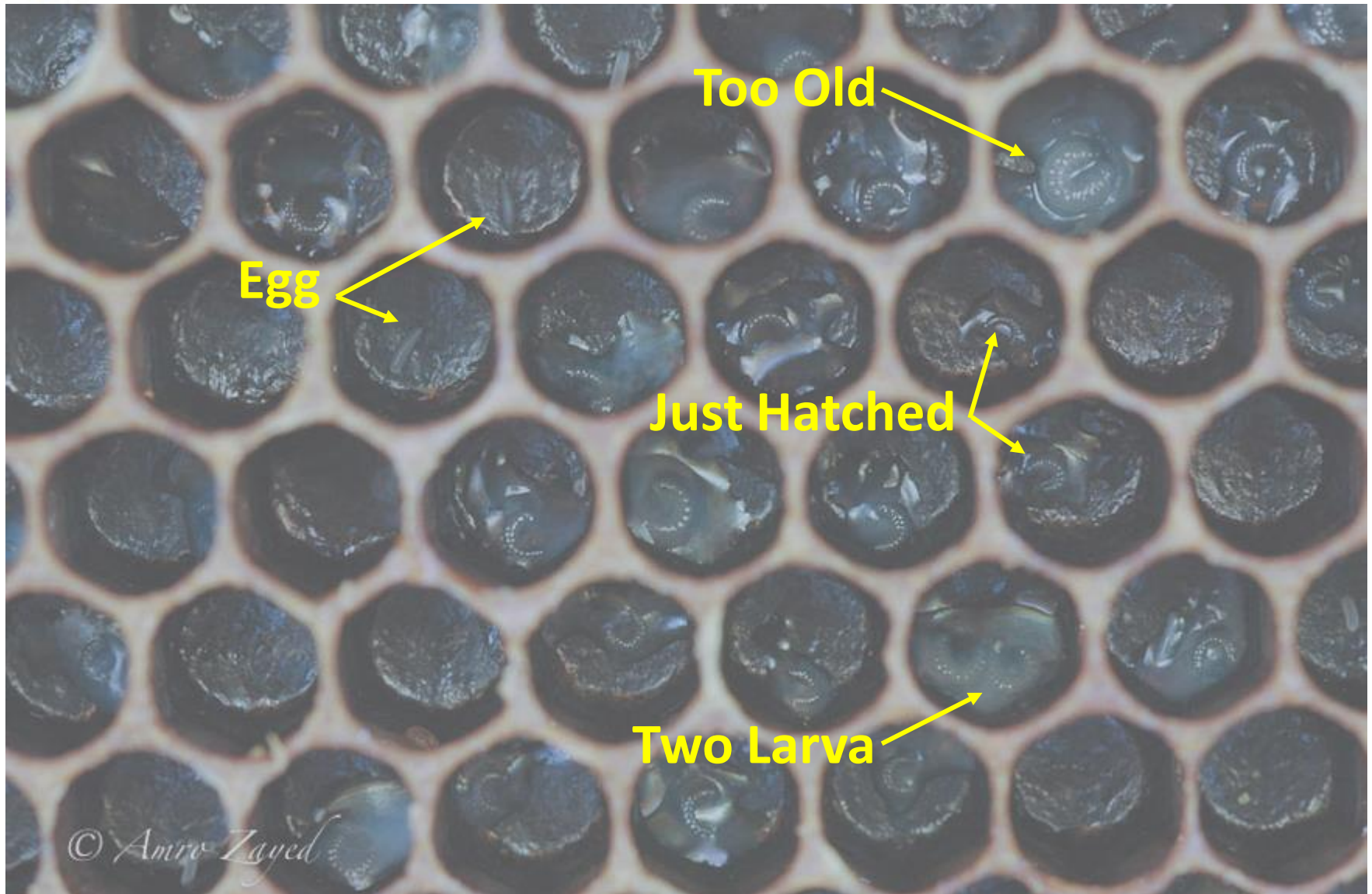
Steps in Queen Rearing





Young Larva

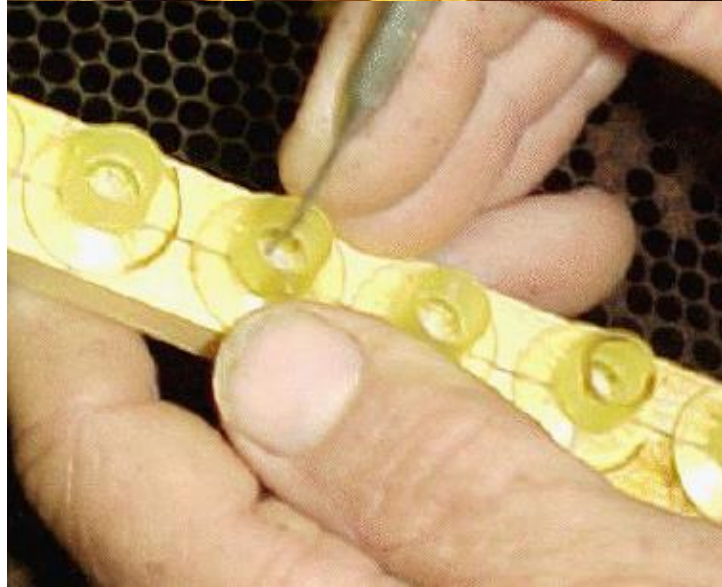
Proper Larva Size – Smaller than an Egg



© Amro Zayed



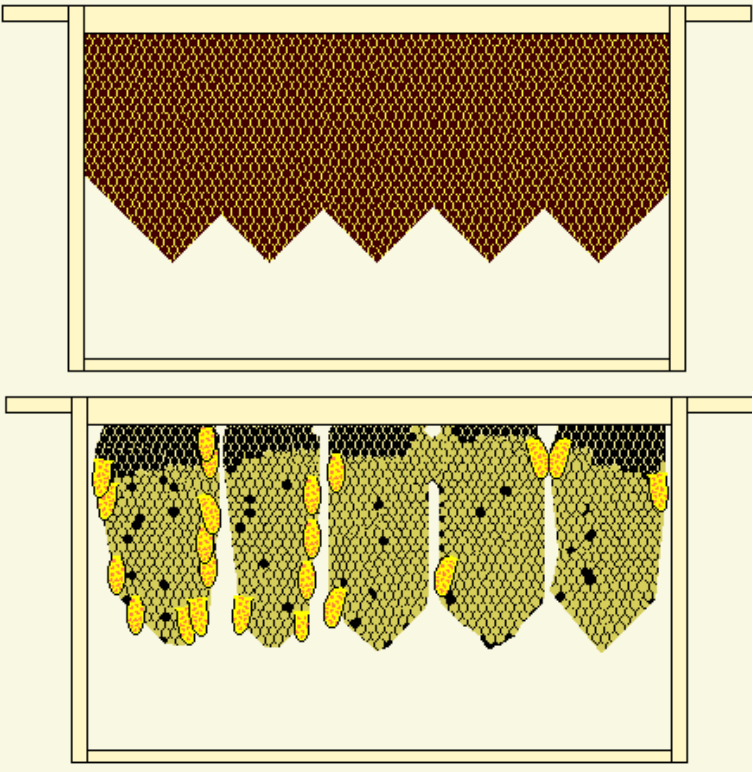
Methods to Secure Young Larva



- Doolittle Method (Grafting)
- Miller Method
- Alley Method
- Hopkins Method
- Jenter System
- Cell Punch Method
- Emergency



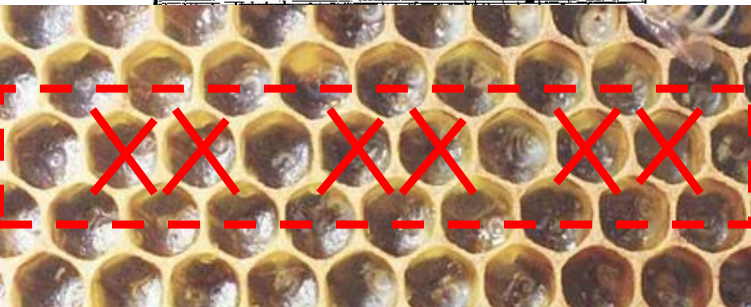
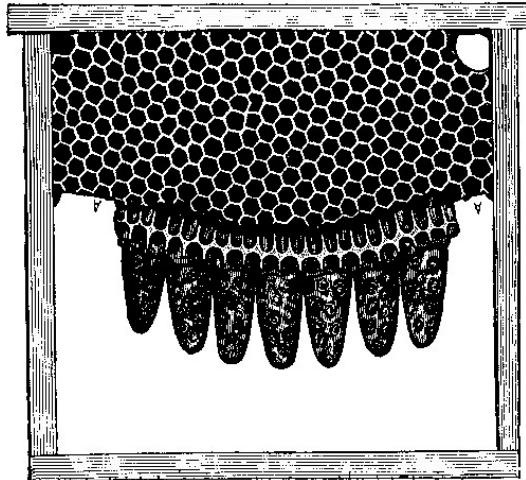
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Methods to Secure Young Larva



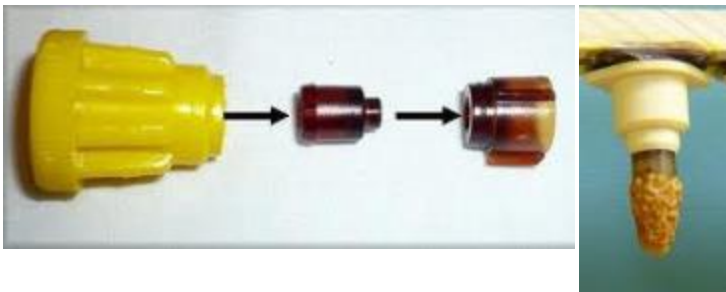
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Methods to Secure Young Larva



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Methods to Secure Young Larva



Be Sure to Evaluate
the Queen's
performance.

- Doolittle Method (Grafting)
- Miller Method
- Alley Method
- Hopkins Method
- Jenter System
- Cell Punch Method
- **Emergency**



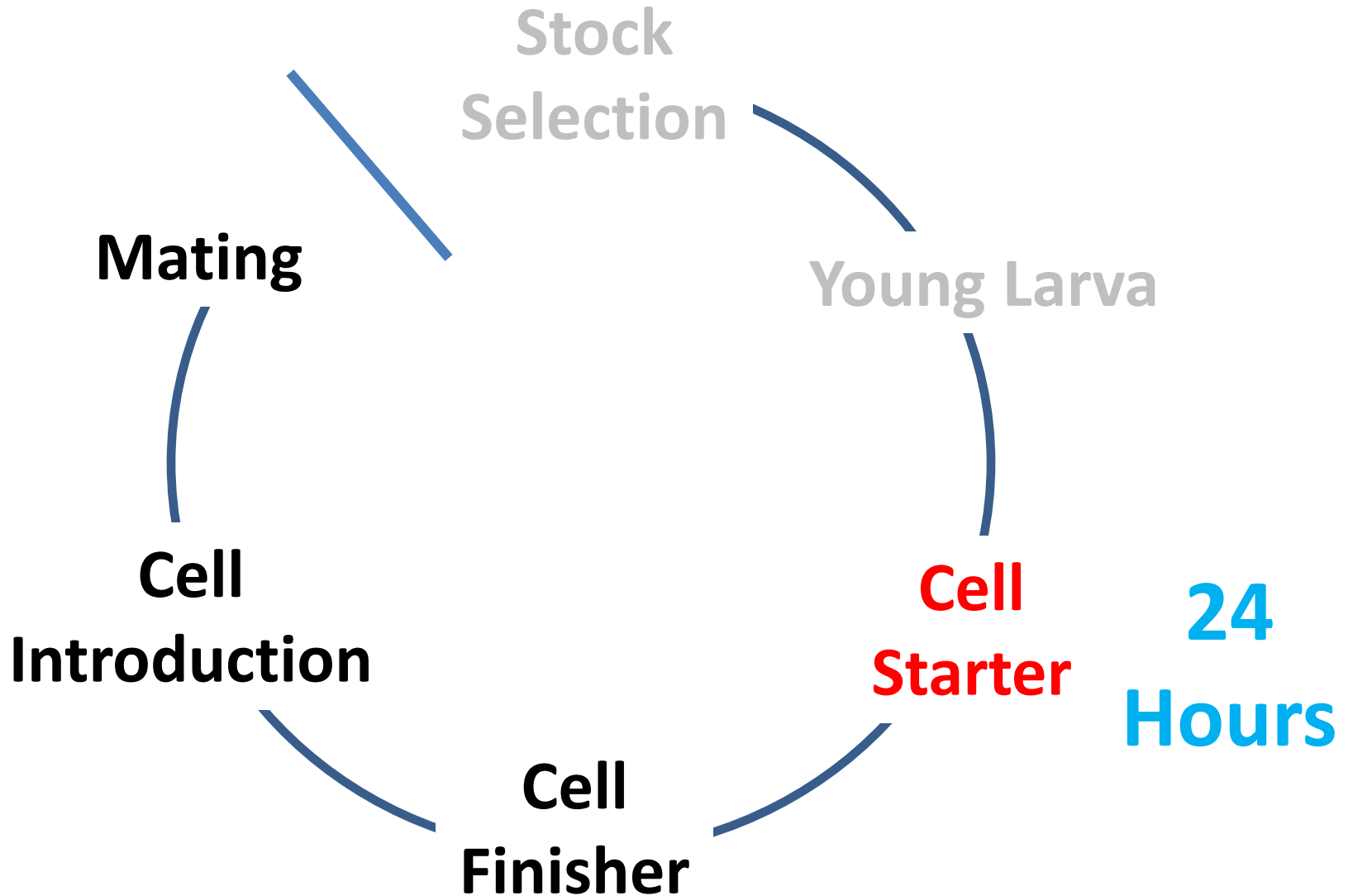
Methods to Secure Young Larva

Objective of ALL of these methods is to obtain the young larva suitable for raising quality queens

- Doolittle Method (Grafting)
- Miller Method
- Alley Method
- Hopkins Method
- Jenter System
- Cell Punch Method
- Emergency

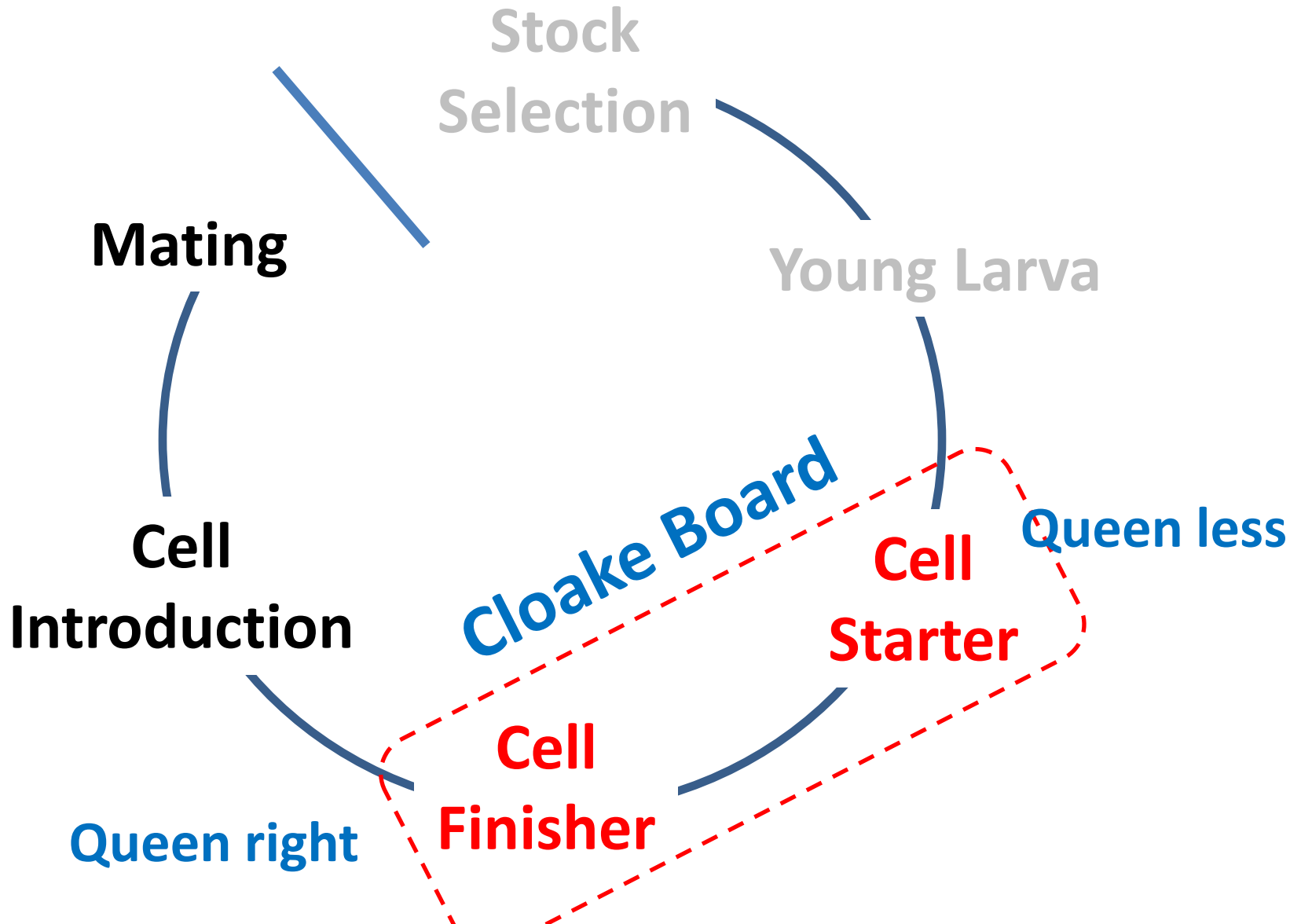


Steps in Queen Rearing



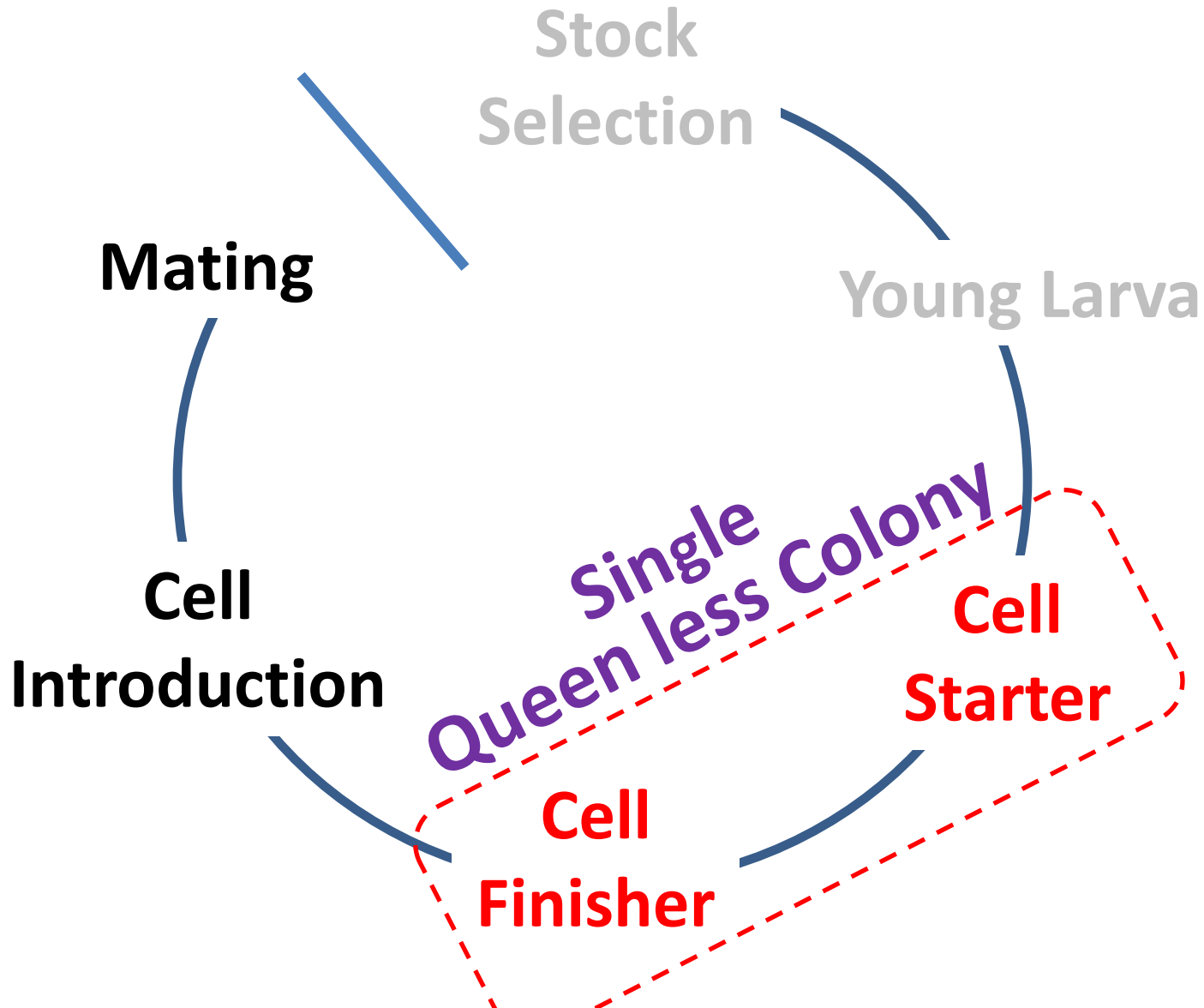


Steps in Queen Rearing





Steps in Queen Rearing





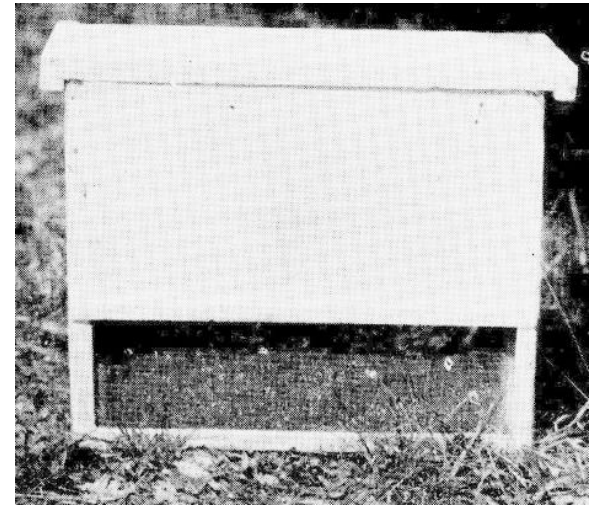
Cell Starter

EMERGENCY Impulse

A cell starter is:

- A “Closed” box with a **large volume of YOUNG nurse bees.**
- Queen-less, brood-less
- Contains open nectar, pollen,

CRITICAL to provisioning larva with abundant royal jelly





Cell Starter

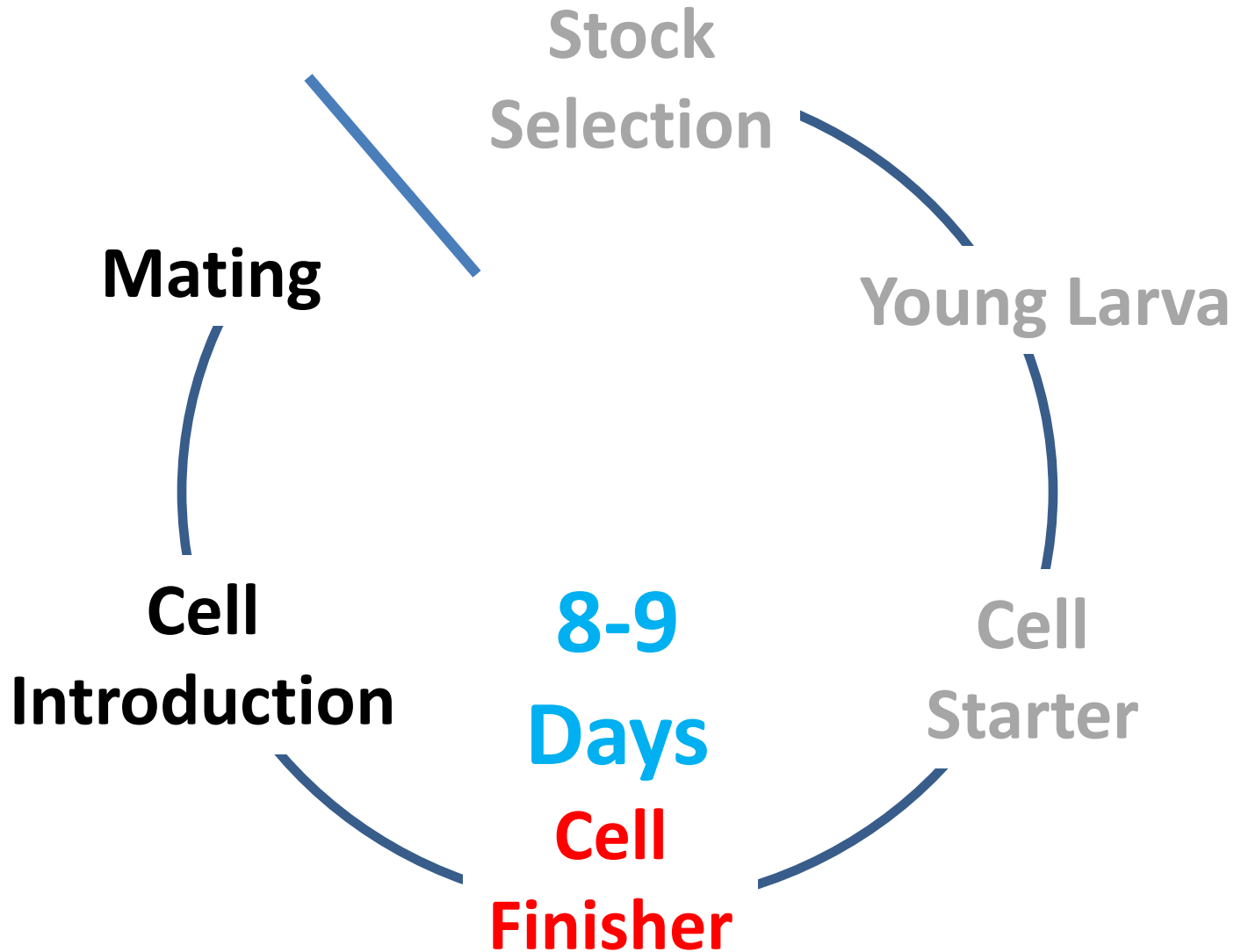
- Contains our young Larva
- A 5 frame nucleus box can be set onto an extended bottom with screened sides
 - Ventilation
 - Space for bees
- Establish starter 4 – 24 hrs. before inserting the frame of young larva



Cells Remain in Starter 24 Hours



Steps in Queen Rearing





Cell Finisher

Cell Finisher:

- Job of the Finisher is to finish the cells that were Started
- Bees will fully provision the cells with Royal Jelly prior to capping-
Lower Stress - No rush.
- Cells will remain in the Finisher 9 days





Cell Finisher

Superscedure Impulse

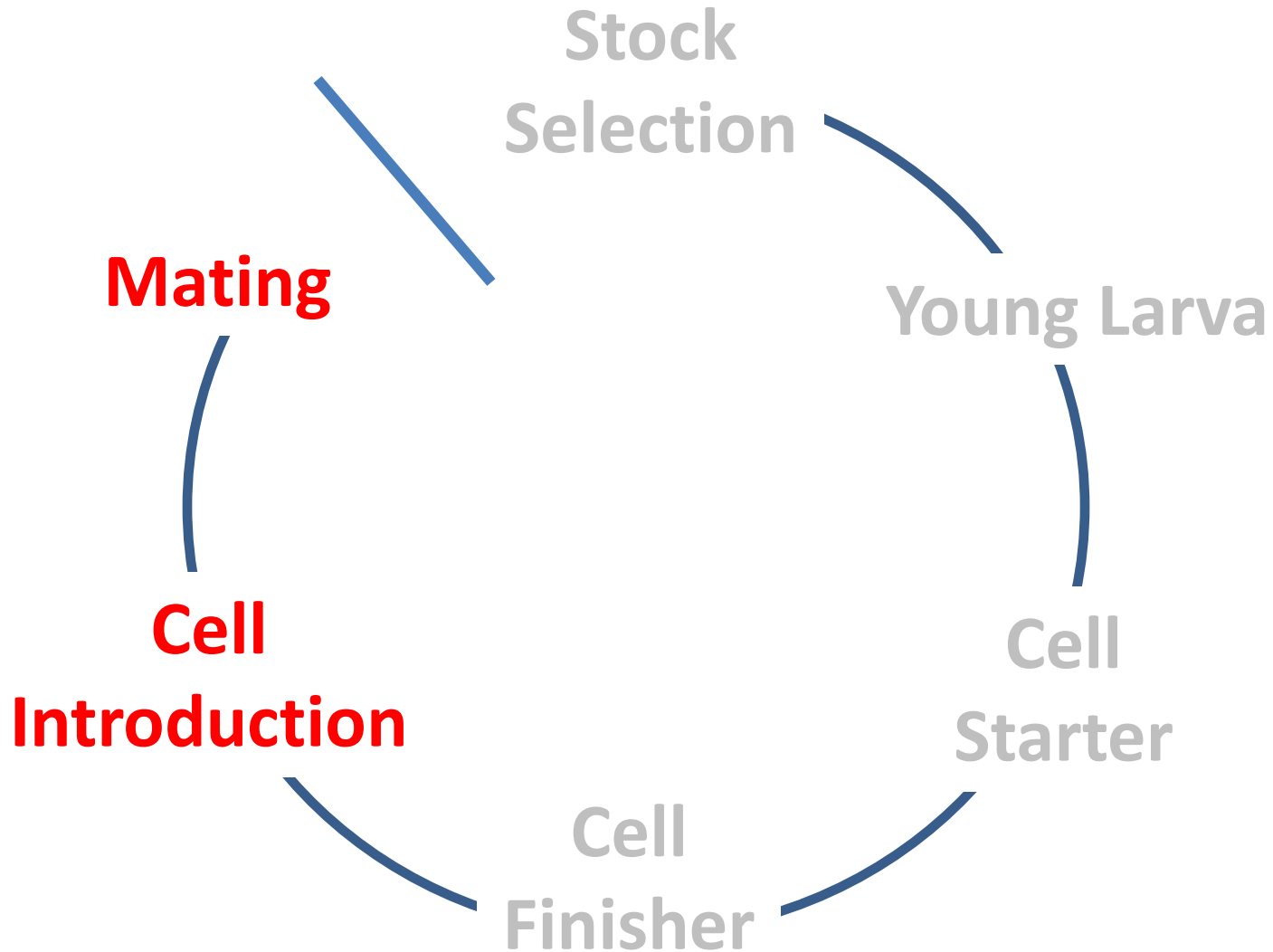
Cell Finisher:

- Typically queen-right
- Vigorous, healthy hive
- Queen is below an excluder with empty frames to lay in
- Frames of uncapped nectar
- **Frame with pollen next to cells**
- Uncapped brood near the cells
- Feed 1:1 sugar syrup.



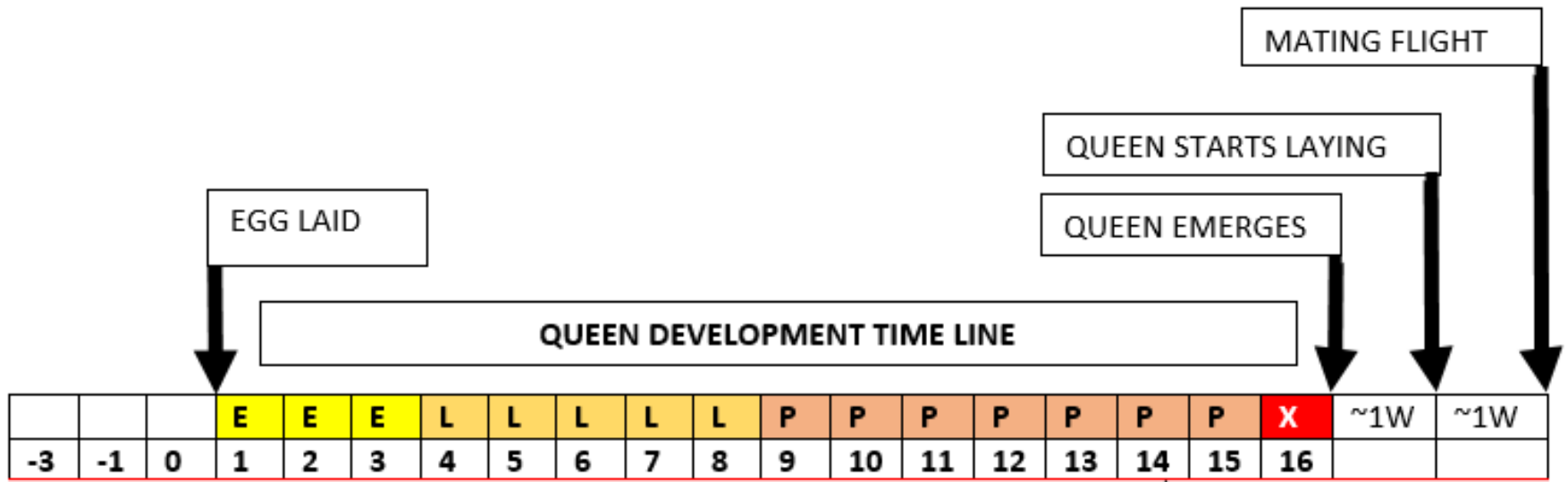


Steps in Queen Rearing



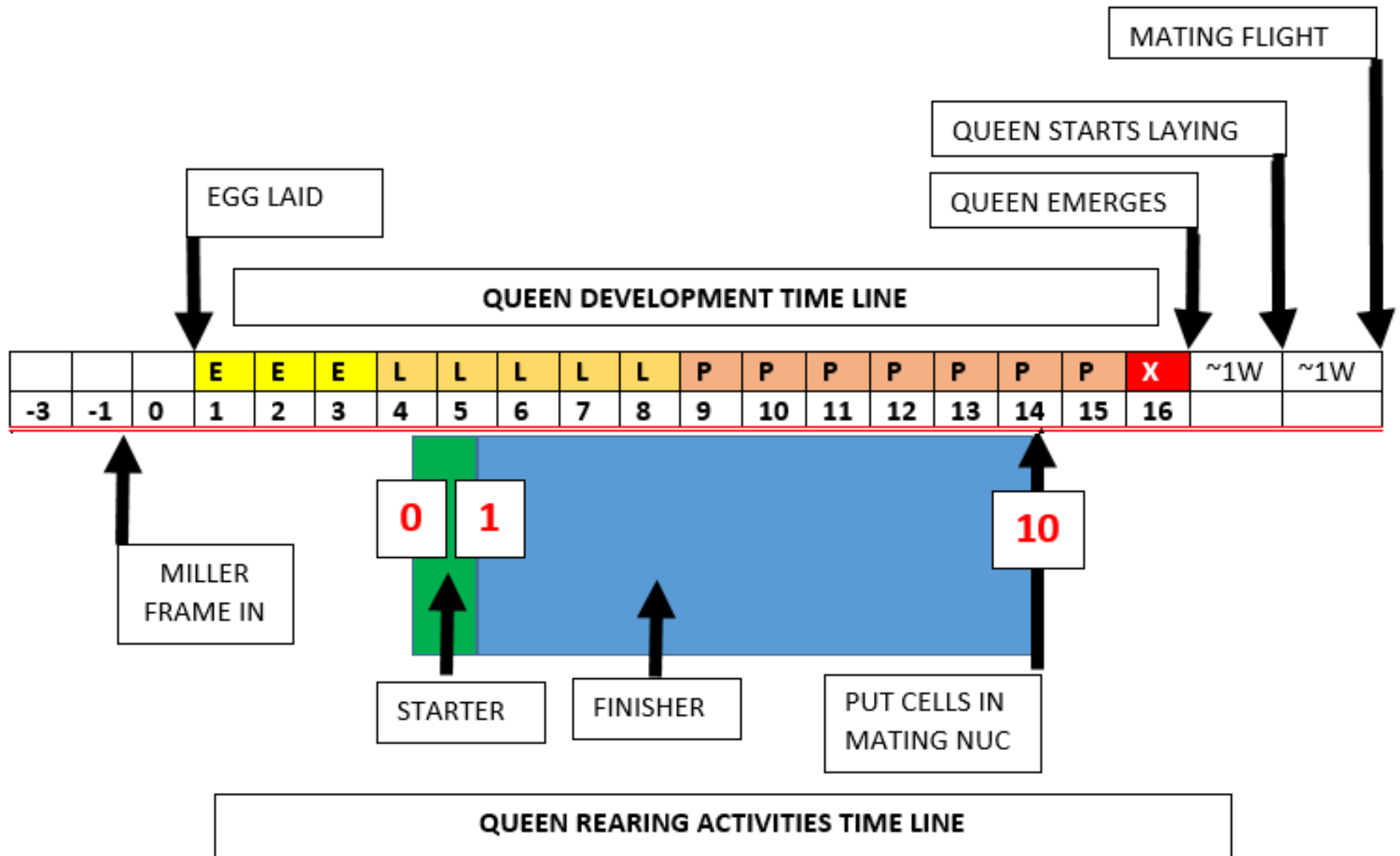


Queen Rearing Time Line





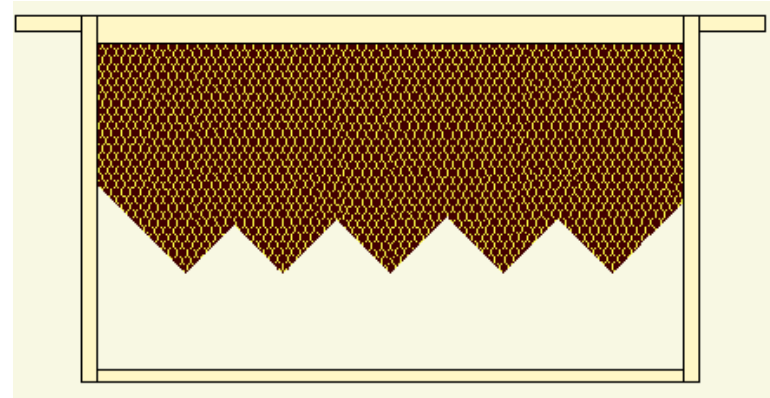
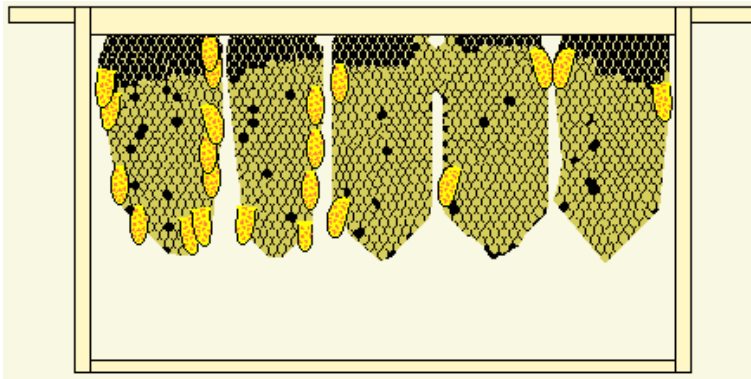
Queen Rearing Time Line





Miller Method

1. Select the hive from which you will secure larva (Stock Selection)
2. Prepare a frame of wax foundation for the bees to draw out and the queen to lay into.
 - Deep Frame with Deep foundation
 - Worker cell wax foundation, no wires

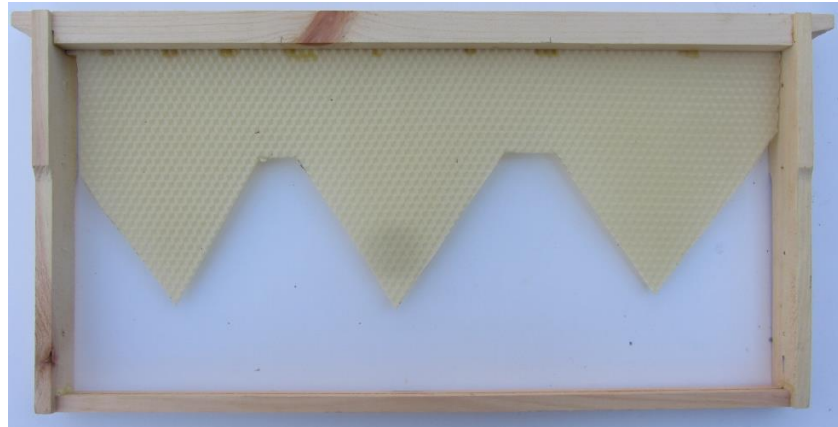
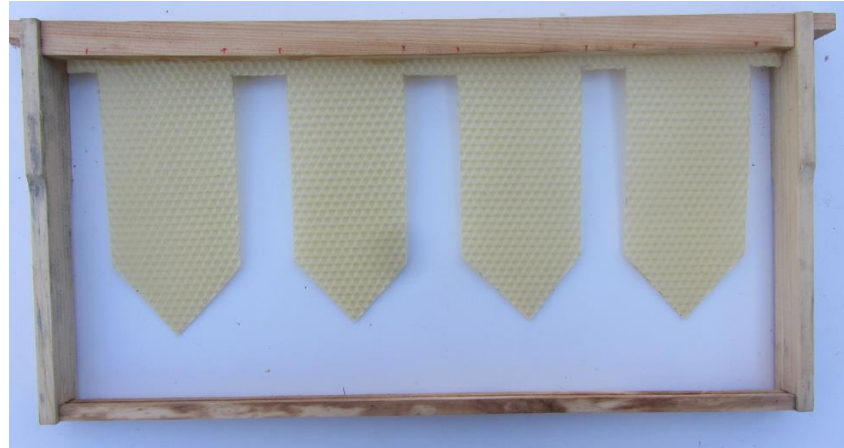




Miller Method

1. Wax Foundation (Miller Frame)

- Strips
- Saw tooth



Both options will work



Miller Method

- You must have a good nectar flow or heavy feeding 1:1 sugar syrup for bees to draw wax
- Place Miller frame in center of brood nest of the selected stock hive
- Hive must sit level for wax to be drawn straight
- Record date and time



Miller Method

- Objective -- remove the frame with freshly hatched eggs. ~ 3 days from time laid
- Check the frame in **2 days** to insure bees are drawing wax
- Inspect for eggs
- Starter box should be prepared 2 to 24 hours prior to the time eggs in Miller Frame are expected to hatch.



Miller Method

Possible Complications

- Bees are not drawing foundation
 - Feed more or wait until there is a nectar flow
- Bees are filling the drawn comb with nectar
 - Move the hive to loose some of the foragers and reduce nectar intake
- Larva has developed beyond 1 day after hatching (larger than the size of an egg)
 - Start the procedure over



Preparing Starter

- Go to a strong hive and locate the frame with the queen and set this frame aside.
- Pull 4 frames with open nectar and pollen
- Center frame space left vacant.



Preparing Starter

- Shake in 2 to 4 lbs of nurse bees.
(nurse bees on frames with brood)
- Add a clean sponge with water to the bottom board of Starter
- Feed the Starter with 1:1 sugar syrup
- Close & set in a cool place
- Effectiveness requires Starter be queen less
Starter now waiting on Miller Frame!



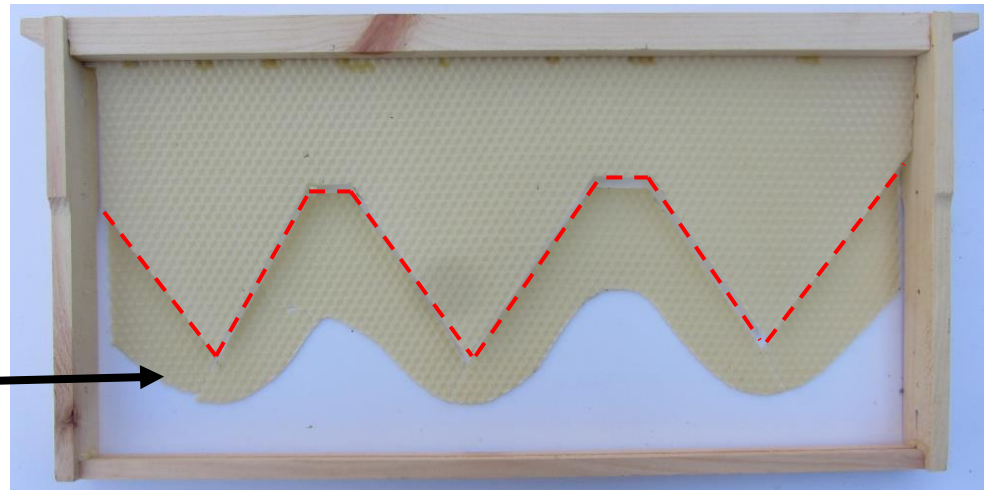
Miller Method

- When the Miller frame is filled with eggs just begun to hatch (Ideally **larva < 12 hours old**) the frame can be removed. Approximately 4 days after inserted

-- Day 0 --

- The bees will have drawn drone cells beyond the original shape provided.

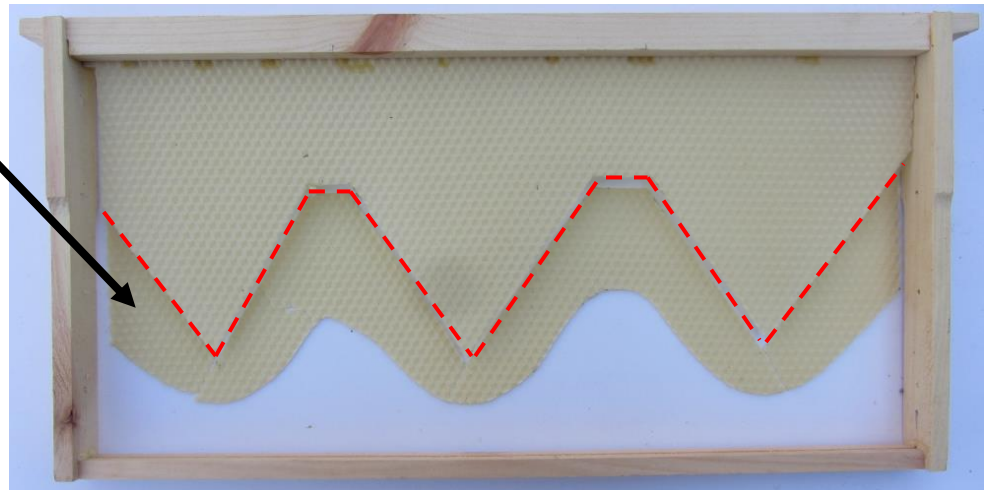
Drone Cells





Miller Method

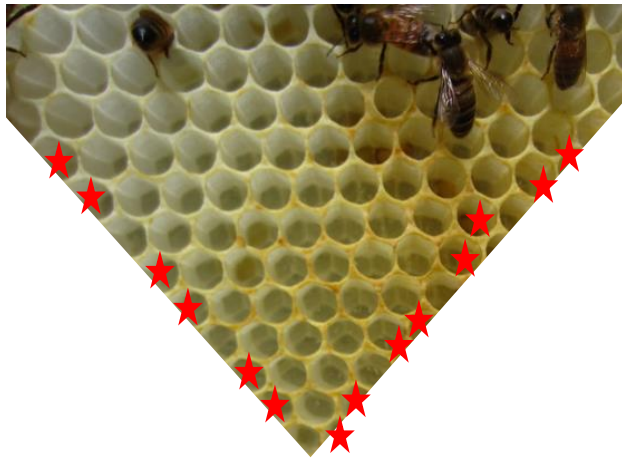
- Avoid tilting the Miller frame – the wax foundation may break free
- Trim away added comb to original shape with a warm - sharp knife.





Miller Method

- After trimming, use a stick to destroy 2 larva & leave 1 larva along cut edges – both sides.
- Work quickly (< 10 minutes) and avoid sunlight to prevent drying of larva
- Use a damp paper towel to cover larva & prevent drying





Starter

- Insert the Miller frame into the center of the Starter.

Miller Frame

Shown here as a grafted frame

- Cover & sit the starter in a cool dark place for **24 hours**





Preparing Finisher

- Select a strong queen-right hive
- Insure queen is below the excluder
- The box above the excluder must be a deep box to accept the Miller Frame





Preparing Finisher

- Make sure the Finisher has 1:1 sugar syrup
- Remove very young brood frames in favor of older larva or capped brood.
- Place a frame with pollen next to the Miller Frame.
- Place a frame with brood next to the Miller Frame
- Insure there are open frames of nectar
- Insure there is NO queen above the queen excluder
- Handle the Miller Frame with care -- avoid breaking the wax and jarring the queen cells. Insert

-- Day 1 --



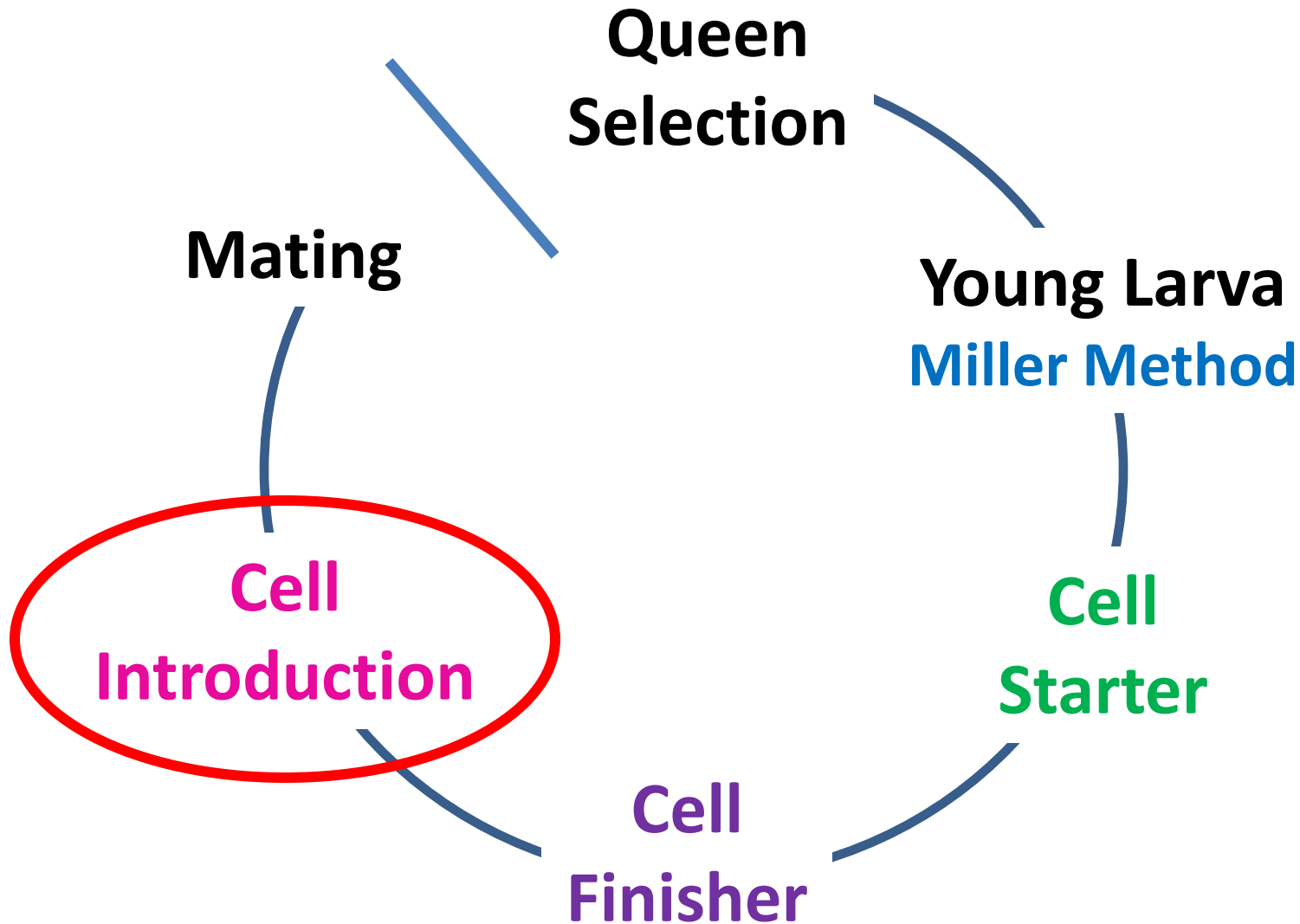
Finisher / Mating Nucs

- Take a peek and see how many cells are drawn and capped.
- Consider culling any small queen cells.
- Make a count on the number of mating nucs that will be needed.
- Prepare mating nucs. Best to move to a different apiary so that you don't lose the bees to drifting back to their hive.

-- Day 8 --



Miller Method





Queen Cell Introduction

--Day 9 --

Mating Nucs should be made up a day or two in advance of installing queen cells

Should have been queen-less for 24 - 48 hours

Place queen cell on a frame with bees (near brood)

--Day 10 --





Miller Method

Check in ~10-12
Days for eggs

Stock
Selection

Young Larva
Miller Method

Mating

SUCCESS!

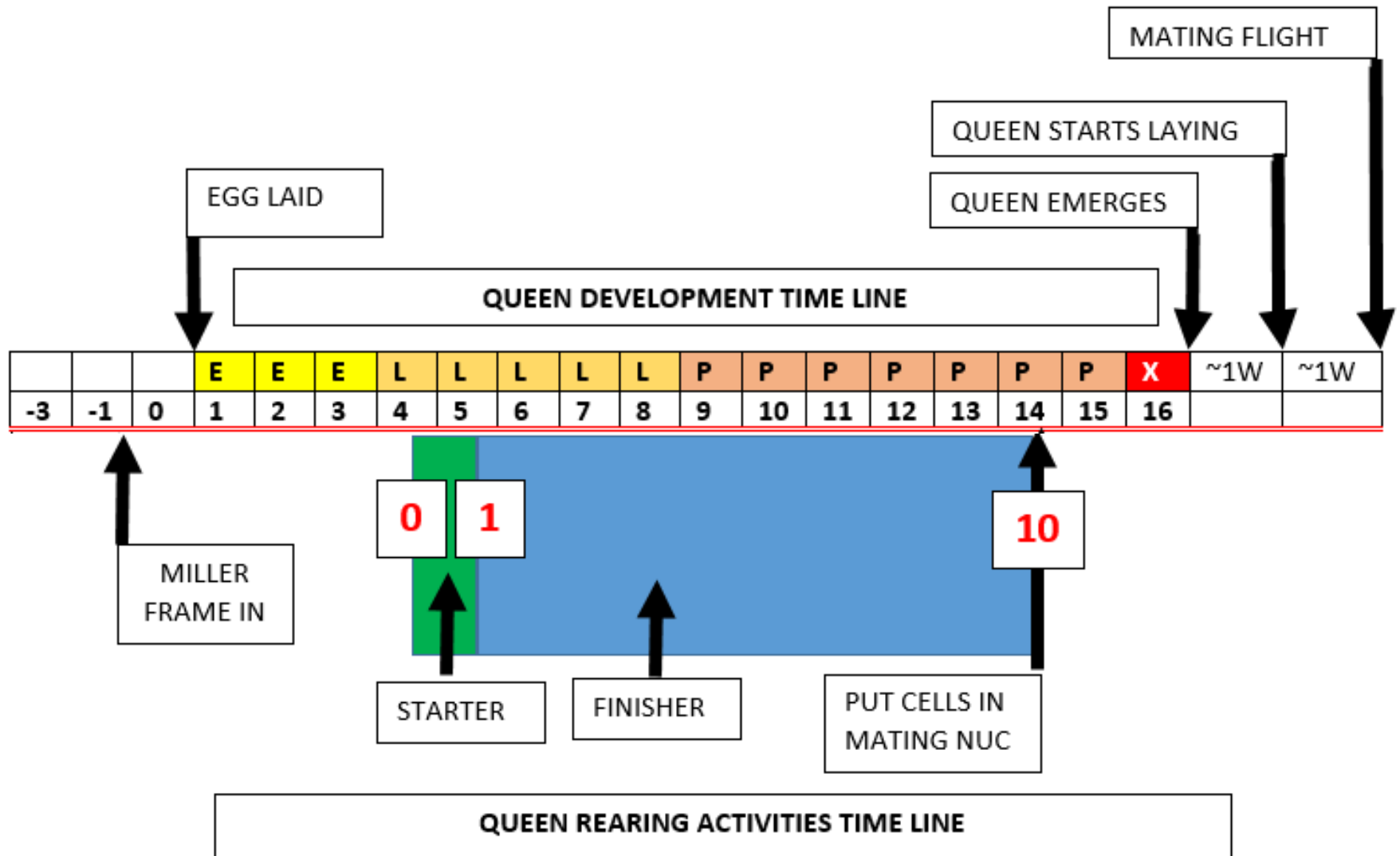
Cell
Introduction

Cell
Starter

Cell
Finisher



Queen Rearing Time Line





Closing

- The ONLY way to learn to rear queens is to do it!
- You will make mistakes but will learn from them.
- It takes practice to develop good technique.
- Read good books and articles to expand your knowledge.
- May be helpful to work with a partner.



Further Information

Send me an email request and I will reply with presentation notes and papers on rearing queens.

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